1. Solve the equation for x and choose the interval that contains x (if it exists).

$$25 = \sqrt[7]{\frac{25}{e^{6x}}}$$

A. $x \in [-6.22, -1.22]$

B. $x \in [-0.54, 3.46]$

C. $x \in [-32.7, -27.7]$

D. There is no Real solution to the equation.

E. None of the above.

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2. Which of the following intervals describes the Domain of the function below?

$$f(x) = -e^{x-8} + 5$$

A. $(-\infty, a], a \in [3, 7]$

B. $(a, \infty), a \in [-8, -3]$

C. $[a, \infty), a \in [-8, -3]$

D. $(-\infty, a), a \in [3, 7]$

E. $(-\infty, \infty)$

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3. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x + 6) - 3$$

A. $(-\infty, a), a \in [4.1, 6.6]$

B. $(a, \infty), a \in [-6.2, -3.5]$

C. $[a, \infty), a \in [-4.3, 0]$

D. $(-\infty, a], a \in [0.5, 4.3]$

E. $(-\infty, \infty)$

---

4. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x+8} - 4$$

A. $(-\infty, a), a \in [-4, 0]$

B. $(-\infty, a], a \in [-4, 0]$

C. $(a, \infty), a \in [1, 7]$

D. $[a, \infty), a \in [1, 7]$

E. $(-\infty, \infty)$

---

5. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$2^{3x+3} = 27^{2x-5}$$

A. $x \in [-20.9, -16.9]$

B. $x \in [4, 5.5]$

C. $x \in [-8.7, -7.2]$

D. $x \in [1.2, 2.7]$

E. There is no Real solution to the equation.

---

6. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(-4x + 6) + 5 = 2$$

A. $x \in [0.4, 2.7]$

B. $x \in [-3.4, -1]$

C. $x \in [-21.7, -17.7]$

D. $x \in [-25.7, -20.6]$

E. There is no Real solution to the equation.

---

7. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{5x+3} = 9^{4x-3}$$

A. $x \in [-11.42, -7.42]$

B. $x \in [6.09, 10.09]$

C. $x \in [-7, -3]$

D. $x \in [13.4, 18.4]$

E. There is no Real solution to the equation.

---

8. Which of the following intervals describes the Domain of the function below?

$$f(x) = -\log_2(x-3) - 4$$

A. $[a, \infty), a \in [-4.02, -3.23]$

B. $(-\infty, a], a \in [3.65, 4.06]$

C. $(a, \infty), a \in [2.45, 3.87]$

D. $(-\infty, a), a \in [-3.14, -2.88]$

E. $(-\infty, \infty)$

---

9. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_3(-4x+7) + 4 = 2$$

A. $x \in [0.56, 2.17]$

B. $x \in [-0.61, -0.3]$

C. $x \in [3.7, 4.81]$

D. $x \in [0.24, 0.81]$

E. There is no Real solution to the equation.

---

10. Solve the equation for x and choose the interval that contains x (if it exists).

$$19 = \ln \sqrt[3]{\frac{13}{e^{7x}}}$$

A. $x \in [-1.63, 2.37]$

B. $x \in [-6.06, -3.06]$

C. $x \in [-9.78, -5.78]$

D. There is no Real solution to the equation.

E. None of the above.

---

11. Solve the equation for x and choose the interval that contains x (if it exists).

$$11 = \sqrt[4]{\frac{26}{e^{6x}}}$$

A. $x \in [0.26, 1.95]$

B. $x \in [-8.49, -7]$

C. $x \in [-0.64, -0.01]$

D. There is no Real solution to the equation.

E. None of the above.

---

12. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x-2} - 1$$

A. $(a, \infty), a \in [1, 5]$

B. $(-\infty, a], a \in [-4, 0]$

C. $[a, \infty), a \in [1, 5]$

D. $(-\infty, a), a \in [-4, 0]$

E. $(-\infty, \infty)$

13. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x+8) + 5$$

A. $(-\infty, a), a \in [-6.9, -2.1]$

B. $[a, \infty), a \in [-10.3, -7.3]$

C. $(-\infty, a), a \in [3.4, 5.4]$

D. $[a, \infty), a \in [7.8, 9.1]$

E. $(-\infty, \infty)$

14. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x-6} - 4$$

A. $(a, \infty), a \in [0, 6]$

B. $[a, \infty), a \in [0, 6]$

C. $(-\infty, a), a \in [-8, -1]$

D. $(-\infty, a], a \in [-8, -1]$

E. $(-\infty, \infty)$

15. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{-2x+3} = 49^{-5x-5}$$

A. $x \in [-8.36, -7.3]$

B. $x \in [-3.24, -2.17]$

C. $x \in [-1.85, -0.86]$

D. $x \in [-0.86, -0.2]$

E. There is no Real solution to the equation.

16. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(-3x+7)+5=3$$

A. $x \in [12, 17]$

B. $x \in [-40.33, -37.33]$

C. $x \in [-2.68, 4.32]$

D. $x \in [3.33, 10.33]$

E. There is no Real solution to the equation.

17. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$4^{-5x+5} = \left(\frac{1}{27}\right)^{3x-5}$$

A. $x \in [2.4, 3.4]$

B. $x \in [-2.5, -0.1]$

C. $x \in [0, 1.9]$

D. $x \in [-6.2, -2.3]$

E. There is no Real solution to the equation.

18. Which of the following intervals describes the Domain of the function below?

$$f(x) = -\log_2(x+1)+2$$

A. $(-\infty, a), a \in [-0.51, 1.05]$

B. $[a, \infty), a \in [1.4, 2.04]$

C. $(-\infty, a], a \in [-2.92, -1.94]$

D. $(a, \infty), a \in [-1.37, 0.82]$

E. $(-\infty, \infty)$

19. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_2(4x+5)+4=2$$

A. $x \in [-0.93, -0.12]$

B. $x \in [-2.18, -0.77]$

C. $x \in [2.16, 2.6]$

D. $x \in [-0.93, -0.12]$

E. There is no Real solution to the equation.

20. Solve the equation for x and choose the interval that contains x (if it exists).

$$16 = \ln \sqrt[4]{\frac{9}{e^{7x}}}$$

A. $x \in [5.83, 9.83]$

B. $x \in [-7.26, -3.26]$

C. $x \in [-3.9, 0.1]$

D. There is no Real solution to the equation.

E. None of the above.

21. Solve the equation for x and choose the interval that contains x (if it exists).

$$9 = \ln \sqrt[3]{\frac{23}{e^{8x}}}$$

A. $x \in [1.8, 4.3]$

B. $x \in [-2.5, -1.7]$

C. $x \in [-1.7, -0.3]$

D. There is no Real solution to the equation.

E. None of the above.

---

22. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x+8} - 2$$

A. $[a, \infty), a \in [1, 4]$

B. $(-\infty, a), a \in [-6, 0]$

C. $(a, \infty), a \in [1, 4]$

D. $(-\infty, a], a \in [-6, 0]$

E. $(-\infty, \infty)$

---

23. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x + 2) - 6$$

A. $(-\infty, a), a \in [-1.7, 4.3]$

B. $(-\infty, a], a \in [3.9, 7.6]$

C. $[a, \infty), a \in [-6.3, -5.2]$

D. $(a, \infty), a \in [-2.3, -1]$

E. $(-\infty, \infty)$

---

24. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x+2} - 3$$

A. $(-\infty, a], a \in [-7, -2]$

B. $(a, \infty), a \in [3, 6]$

C. $[a, \infty), a \in [3, 6]$

D. $(-\infty, a), a \in [-7, -2]$

E. $(-\infty, \infty)$

---

25. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{3x+3} = \left(\frac{1}{343}\right)^{2x-3}$$

A. $x \in [7.68, 14.68]$

B. $x \in [-2.36, 0.64]$

C. $x \in [-8, -3]$

D. $x \in [-0.23, 1.77]$

E. There is no Real solution to the equation.

---

26. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_3(-3x + 6) + 4 = 2$$

A. $x \in [-1.36, -0.16]$

B. $x \in [-0.37, 1.1]$

C. $x \in [4.58, 6]$

D. $x \in [1.48, 2.81]$

E. There is no Real solution to the equation.

---

27. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{5x-4} = \left(\frac{1}{9}\right)^{-4x-3}$$

A. $x \in [-0.89, 1.11]$

B. $x \in [0.45, 2.45]$

C. $x \in [-3.35, -0.35]$

D. $x \in [-19.57, -14.57]$

E. There is no Real solution to the equation.

---

28. Which of the following intervals describes the Domain of the function below?

$$f(x) = -\log_2(x-8) - 2$$

A. $(-\infty, a), a \in [-11.2, -6.8]$

B. $(a, \infty), a \in [6.5, 8.3]$

C. $[a, \infty), a \in [-4.5, -1.7]$

D. $(-\infty, a], a \in [0.3, 4]$

E. $(-\infty, \infty)$

---

29. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_3(2x+7) + 6 = 3$$

A. $x \in [9, 12]$

B. $x \in [-11, -9]$

C. $x \in [-4.48, -2.48]$

D. $x \in [-18, -15]$

E. There is no Real solution to the equation.

---

30. Solve the equation for x and choose the interval that contains x (if it exists).

$$23 = \ln \sqrt[5]{\frac{6}{e^{8x}}}$$

A. $x \in [-4.18, -1.18]$

B. $x \in [-6.53, -2.53]$

C. $x \in [12.15, 17.15]$

D. There is no Real solution to the equation.

E. None of the above.
